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Docket No.: KCC-15,529

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: John David TUCKER, et al.

Serial No.: 09/967,218

Filing Date: 28 September 2001

Title: TEXTILE FIBERS MADE FROM
STRENGTHENED POLYPROPYLENE

Confirmation No. 7138

Customer No. 35844

Group No.: 1711

Examiner: T. Tran

APPEAL BRIEF UNDER 37 CFR 41.37

Mail Stop Appeal Brief - Patents
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Dear Sir:

Applicants herewith file their Appeal Brief in the above-identified case, pursuant to their Notice of Appeal filed 21 January 2005.

1. REAL PARTY IN INTEREST

The real party in interest is Kimberly-Clark Worldwide, Inc., the assignee of the present application (as recorded at reel 012556, frame 0824).

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2. RELATED APPEALS AND INTERFERENCES

Applicants are not aware of any related appeals or interferences with regard to the present application.

3. STATUS OF CLAIMS

Claims 1 and 4-23 are pending in the application, with Claims 12-19 withdrawn from consideration. The present Appeal is directed to Claims 1, 4-11, and 20-23, which were finally rejected in an Office Action mailed 22 September 2004.

4. STATUS OF AMENDMENTS

An Amendment to Claims 1 and 20 was filed 22 November 2004 in response to the most recent final rejection, but the Amendment was not entered.

5. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention is directed to textile fibers including at least 75% by weight polypropylene blended with an impact modifier. (Page 6, line 20 - Page 7, line 2). The impact modifier has elastomeric properties (Page 7, lines 5-6).

The textile fibers may include about 0.59-4% impact modifier, wherein the impact modifier is selected from the group consisting of ethylene-propylene-diene-monomer, styrene/ethylene-co-butadiene/styrene, styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene), multi-block elastomeric copolymers, polyurethanes, polyamides, polyesters, single-site or metallocene-catalyzed polyolefins having density less than about 0.89 grams/cc, and ethylene/styrene. (Page 7, line 8 - Page 8, line 2; Page 18, line 1 - Page 26, line 14).

The invention is also directed to a nonwoven fabric including a plurality of such modified fibers including about 1-25% by weight impact modifier, wherein the impact modifier is selected from the group consisting of ethylene-propylene-diene-monomer, styrene/ethylene-co-butadiene/styrene, and styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene). (Page 7, lines 1-2 and 8-11; Page 9, lines 12-14).

6. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1) Claims 1, 4, 5, 7, 9, 10, and 20-22 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Ogale et al.* (U.S. Patent No. 5,346,756, hereinafter "*Ogale*").

2) Claims 6, 11, and 23 stand rejected under 35 U.S.C. 103(a) as being unpatentable over *Ogale* as applied to Claim 1 above, further in view of *Collier, IV et al.* (U.S. Patent No. 5,288,791, hereinafter "*Collier*").

7. ARGUMENT

I. Claims 1, 4, 5, 7, 9, 10, and 20-22 are not anticipated by *Ogale* under 35 U.S.C. 102(b).

In the final Office Action, mailed 22 September 2004, the Examiner rejected Claims 1, 4, 5, 7, 9, 10, and 20-22 under 35 U.S.C. 102(b) as being anticipated by *Ogale*.

Prior to issuing the final Office Action, the Examiner initiated a telephone interview with Applicants' undersigned attorney on 13 April 2004, suggesting possible amendments to the independent claims that would result in the allowance of all of the pending claims (Claims 1 and 4-23). The Examiner and Applicants' undersigned attorney agreed to change "at least 75%" to "at least 80%" in the independent claims by Examiner's Amendment, thereby placing the claims in condition for allowance. Without explanation, the Examiner subsequently issued a restriction requirement in lieu of making the agreed-upon Examiner's Amendment.

The Examiner repeated the same rejection over *Ogale* in the final Office Action mailed 22 September 2004 as stated in the previous Office Action. Applicants responded to the final Office Action by amending the independent claims in the manner previously agreed upon with the Examiner in the telephone interview, but the Examiner refused to enter the amendment, stating that the added limitation raises a new issue that potentially requires further consideration.

In any case, even without the non-entered amendment to Claims 1 and 20, *Ogale* does not disclose each and every element or limitation of independent Claims 1 and/or 20.

With respect to Claims 1 and 4-11, contrary to the Examiner's assertion, *Ogale* fails to disclose the amount of ethylene-propylene copolymer to be 1% in Col. 2, lines 35-37, or in Examples 1-2, because **20% x 50% is 10%, not 1%**. *Ogale* also discloses fibers made up of 5 to about 95% propylene polymer material (A), which means that the olefin polymer material (B) must account for **at least 5%** of the fiber. Even if component (B) were the equivalent of an impact modifier, which Applicants believe is not the case, the amount of impact modifier recited in Applicants' Claim 1 (0.59-4%) is still less than the amount of any alleged impact modifier component disclosed by *Ogale*.

In *Ogale*, the propylene polymer material and the olefin polymer material are prepared by polymerization, generally by sequential polymerization *in the case of the olefin polymer material*, of the relevant monomers in the presence of a stereospecific Ziegler-Natta catalyst system having a solid catalyst component supported on a magnesium dihalide in active form. The olefin polymer material includes components (a) and (b), and optionally (c). Polymerization of a mixture of ethylene, propylene, and a diene in the presence of a Ziegler-Natta catalyst system would result in an EPDM rubber. However, *Ogale* discloses sequential polymerization of *more* than just ethylene, propylene, and a diene. More particularly, *Ogale* discloses polymerization of (a) a propylene polymer having an isotactic index of greater than 80, or a copolymer of propylene with ethylene or a C₄-C₈ alpha-olefin or combinations thereof, containing over 80% propylene and having an isotactic index greater than 80, (b) a semi-crystalline copolymer fraction, which copolymer is insoluble in xylene at room or ambient temperature, and (c) a copolymer fraction of ethylene with propylene or a C₄-C₈ alpha-olefin or combinations thereof, and optionally with minor amounts of a diene, said copolymer fraction containing less than 40% ethylene or a C₄-C₈ alpha-olefin or combinations thereof. Since (a), (b), and (c) are polymerized prior to blending the resulting olefin polymer material with the propylene polymer material, the polymerization of (a), (b), and (c) in any order fails to result in EPDM per se because (c) must still be polymerized with (a) and (b). Consequently, *Ogale* fails to disclose a fiber comprising polypropylene blended with EPDM.

Additionally, Applicants' invention as recited in independent Claims 1 and 20 requires that a fiber include polypropylene blended with an impact modifier, *wherein the impact modifier has elastomeric properties*. More particularly, in Claim 1 the impact

modifier is either ethylene-propylene-diene-monomer (EPDM), styrene/ethylene-cobutadiene/styrene (SEBS), styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene) (SEPSEP), a multi-block elastomeric copolymer, polyurethane, polyamide, polyester, single-site or metallocene-catalyzed polyolefin having density less than about 0.89 grams/cc, or ethylene/styrene, while in Claim 20 the impact modifier is either EPDM, SEBS, or SEPSEP.

Ogale fails to disclose the combination of polypropylene blended with any impact modifier. In particular, *Ogale* fails to disclose the combination of polypropylene blended with any of the impact modifiers recited in Claims 1 and 20. As defined on page 7, lines 5-6, of the present application, and recited explicitly in Claims 1 and 20, the term “impact modifier” refers to “a synthetic material having elastomeric properties.” *Ogale* fails to disclose a combination of polypropylene with a synthetic material having elastomeric properties.

The molecular structure of such block copolymers as SEBS and SEPSEP, for example, includes block segments of styrene monomer units and rubber monomer units. Prior to processing, polystyrene end-blocks are associated in rigid domains. “Physical crosslinking” via these domains yields a continuous three-dimensional network. During processing, in the presence of heat and shear or solvent, the polystyrene domains soften and permit flow. After cooling or solvent evaporation, the polystyrene domains reform and harden, locking the rubber network in place. This “physical crosslinking” and the reinforcing effect of the styrene domains give these polymers their high tensile strength. The rubber mid-block gives them their elasticity. *Ogale* fails to disclose any olefin polymers having the elastomeric properties of EPDM, SEBS, and/or SEPSEP.

Furthermore, *Ogale* discloses lower ethylene content random copolymers, whereas the present invention includes high ethylene content copolymers. More particularly, as known by those skilled in the art, EPDM and the rubber monomer units of the elastomeric block copolymers typically include at least 40% ethylene, or more particularly between about 48% and about 72% ethylene for EPDM. In contrast, *Ogale* discloses a random propylene terpolymer including from 1.5 to 5% ethylene (Col. 1, lines 43-46), or a propylene polymer composition including from 40 to 80% of a copolymer fraction that contains less than 40% ethylene (Col. 1, line 64 – Col. 2, line 12), such that

the propylene polymer composition includes less than 16 to 32% ethylene. Consequently, the resulting material in *Ogale* is quite different from the fibers of Applicants' claimed invention.

For at least the reasons presented above, Applicants respectfully request the Board to overturn this rejection.

II. Claims 6, 11, and 23 are non-obvious under 35 U.S.C. 103(a) based on the teachings of *Ogale* in view of *Collier*.

In the final Office Action, mailed 22 September 2004, the Examiner rejected Claims 6, 11, and 23 under 35 U.S.C. 103(a) as being unpatentable over *Ogale* in view of *Collier*.

As explained above, *Ogale* fails to disclose a combination of polypropylene blended with anything that would be considered an "impact modifier" as defined by Applicants. In particular, *Ogale* fails to disclose the combination of polypropylene blended with any of the impact modifiers recited in Applicants' Claims 1 and 20.

Even if the fibers of *Ogale* were formed into staple or absorbent fibers based on the staple and absorbent fibers disclosed in *Collier*, the resulting staple or absorbent fibers would not disclose or suggest Applicants' claimed invention because the composition of the *Ogale* fibers is different than the composition of the fibers claimed by Applicants.

There is no suggestion or motivation to modify or combine the teachings of *Collier* and *Ogale*. Not only are the fibers in *Collier* in *Ogale* very different from Applicants' claimed fibers, but the fibers in *Collier* and *Ogale* are also very different from one another. *Collier* discloses elastic fibers composed primarily of SEPS or a mixture of SEPS and SEBS, and a tackifying resin. A minor amount of polypropylene may be present in the fibers. *Ogale* discloses fibers including a blend of a propylene polymer material and an olefin polymer material polymerized in the presence of a particular catalyst system. Even if the teachings of *Collier* and *Ogale* were combined, there is no reasonable expectation that a person skilled in the art would derive a fiber comprising at least 75% by weight polypropylene blended with an impact modifier because *Collier* discloses a very small amount of polypropylene and *Ogale* discloses a

wide range of polypropylene content, but neither reference discloses or suggests a minor amount of an impact modifier having elastomeric properties.

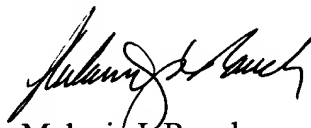
For at least the reasons presented above, Applicants respectfully request the Board to overturn this rejection.

8. CONCLUSION

For the above reasons, Applicants respectfully submit that the rejections posed by the Examiner are improper as a matter of law and fact. Accordingly, Applicants respectfully request the Board reverse the rejection of Claims 1, 4-11, and 20-23.

A check for the fee required by 37 CFR 41.37(a)(2) and 37 CFR 41.20(b)(2), updated pursuant to the Fiscal Year 2005 Fee Schedule, in the amount of \$500.00, is attached hereto. Please charge any additional amount owed, or credit any overpayment, to Deposit Account 19-3550.

Respectfully submitted,



Melanie I. Rauch
Registration No. 40,924

Pauley Petersen & Erickson
2800 West Higgins Road
Suite 365
Hoffman Estates, Illinois 60195
(847) 490-1400
FAX (847) 490-1403

APPENDIX A

1. A textile fiber comprising at least 75% by weight polypropylene blended with about 0.59-4% by weight impact modifier, wherein the impact modifier has elastomeric properties and is selected from the group consisting of ethylene-propylene-diene-monomer, styrene/ethylene-co-butadiene/styrene, styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene), multi-block elastomeric copolymers, polyurethanes, polyamides, polyesters, single-site or metallocene-catalyzed polyolefins having density less than about 0.89 grams/cc, and ethylene/styrene.
4. The textile fiber of Claim 1, wherein the impact modifier comprises a copolymer selected from the group consisting of ethylene-propylene-diene-monomer, styrene/ethylene-co-butadiene/styrene, and styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene).
5. A spunbond fiber comprising the textile fiber of Claim 1.
6. A staple fiber comprising the textile fiber of Claim 1.
7. A multi-fiber yarn comprising the textile fiber of Claim 1.
8. A knit fabric comprising the textile fiber of Claim 1.
9. A woven fabric comprising the textile fiber of Claim 1.
10. A nonwoven fabric comprising the textile fiber of Claim 1.
11. An absorbent article comprising the nonwoven fabric of Claim 10.

20. A nonwoven fabric comprising a plurality of modified fibers, the modified fibers including at least 75% by weight polypropylene blended with about 1-25% by weight impact modifier, wherein the impact modifier has elastomeric properties and is selected from the group consisting of ethylene-propylene-diene-monomer, styrene/ethylene-co-butadiene/styrene, and styrene-poly(ethylene-propylene)-styrene-poly(ethylene-propylene).

21. The nonwoven fabric of Claim 20, wherein the modified fibers comprise about 2-15% by weight impact modifier.

22. The nonwoven fabric of Claim 20, wherein the modified fibers comprise about 3-10% by weight impact modifier.

23. An absorbent article comprising the nonwoven fabric of Claim 20.